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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,568	03/30/2004	Rahul Gupta	12406-155001 / P2004,0388	3687
26181	7590	11/15/2006	EXAMINER	
FISH & RICHARDSON P.C. PO BOX 1022 MINNEAPOLIS, MN 55440-1022			GARRETT, DAWN L	
			ART UNIT	PAPER NUMBER
			1774	
DATE MAILED: 11/15/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/812,568

Applicant(s)

GUPTA ET AL.

Examiner

Dawn Garrett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 7 and 9-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7, 9-22 and 24-50 is/are rejected.
- 7) ☒ Claim(s) 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office action is responsive to the amendment filed August 24, 2006. Claims 1 and 24 were amended. Claims 5 and 8 are canceled. Claims 27-50 have been added. Claims 1-4, 6, 7, and 9-50 are pending.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. The rejection of claim 24 under 35 U.S.C. 112, first paragraph is withdrawn due to the amendment.
4. Claims 26-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Endo et al. (US 6,787,063) in view of Kwong et al. (US 6,982,179). Endo et al. discloses electro-optical devices (see abstract). Example 2 describes a device comprising a glass substrate with an indium tin oxide (ITO) coating per the instant "deposition surface" (see col. 11, lines 18-19). Pixels comprised of polyimide film and SiO₂ film formed by lithography are disposed on the ITO anode layer per the instant pocket resist (see col. 11, lines 18-19). The hole injection-transportation composition comprises 11.08% Baytron P (a PEDOT:PSS conductive polymer) per claim 31. The OLED further comprises an emitting layer over the hole injection-transportation layer (see col. 11, lines 46-52). The cathode is formed over the emission layer (see col. 11, lines 53-55). The device may further comprise thin film transistors per instant claim 45 (see col. 10, lines 51-54). With regard to claims 33-36, the hole transporting layer made from PEDOT:PSS is deemed to have the property of wave-guiding, because PEDOT:PSS is the same material as taught by applicant for the hole transporting layer. Endo et al. clearly discloses multiple organic functional

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layer disposed between resist material, but does not teach that one of the organic layers is cross-linked. Kwong et al. (US 6,982,179) teaches in analogous art depositing a first organic layer that is insoluble to the second layer (see abstract). One way of achieving insolubility for the first layer is to cross-link the hole transport layer (see col. 10, lines 28-53, Fig. 3 description). Kwong et al. further teaches cross-linking increases the mechanical strength and thermal stability of the thin film layer (see col. 11, lines 38-40). Kwong et al. further teaches blocking layers (see col. 6, lines 53-67). The cross-linking step taught by Kwong et al. is considered to render the material different from an uncrosslinked material per claim 26. Kwong et al. further teaches other layers may be crosslinked per claim 49 (see col. 11, lines 14-25). It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the functional layers of a device, including crosslinked layers, taught by Kwong et al. for the Endo et al. device, because the layers taught by Kwong are functional organic layers of an OLED device and Kwong et al. teaches the benefit of crosslinking some of the layers. Claims 39 and 40 are included in this rejection, because as written, the claims require a product-by-process limitation. The claims only require that the final product is crosslinked. Absent evidence otherwise, the crosslinked product taught by Kwong and the resulting crosslinked final product of the claims would be the same.

5. The rejection of claims 1-4, 6, 7, and 9-25 under 35 U.S.C. 103(a) as being unpatentable over Endo et al. (US 6,787,063) in view of Kwong et al. (US 6,982,179) is withdrawn due to the amendment of claim 1. The secondary reference Kwong et al. (US 6,982,179) does not teach the crosslinking agents that are now required to be present in the first portion in amended claim 1.

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6. Claims 26-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwong et al. (US 2004/0214038 A1) in view of Kwong et al. (US 6,982,179). Kwong et al. '038 discloses electronic devices comprising an anode layer formed of ITO (see par. 27) per the "deposition surface", a polyimide photoresist grid (see par. 72) per the resist pocket and a hole injection layer formed by a solution of PEDOT:PSS conductive polymer (see par. 52). The device further comprises an emissive layer (see Kwong et al. '038 claim 5). With regard to claims 31-33, the hole transporting layer made from PEDOT:PSS is deemed to have the property of wave-guiding, because PEDOT:PSS is the same material as taught by applicant for the hole transporting layer. The device also comprises a cathode (see par. 55). Kwong et al. '038 discloses the materials and structures described are applicable to organic electroluminescent devices (OLEDs), organic solar cells, and organic transistors (see par. 60) per claims 45 and 46. Kwong et al. '038 clearly discloses multiple organic functional layer disposed between resist material, but does not teach that one of the organic layers is cross-linked. Kwong et al. (US 6,982,179) teaches in analogous art depositing a first organic layer that is insoluble to the second layer (see abstract). One way of achieving insolubility for the first layer is to cross-link the hole transport layer (see col. 10, lines 28-53, Fig. 3 description). Kwong et al. '179 further teaches cross-linking increases the mechanical strength and thermal stability of the thin film layer (see col. 11, lines 38-40). Kwong et al. '179 further teaches blocking layers (see col. 6, lines 53-67). The cross-linking step taught by Kwong et al. '179 is considered to render the material different from an uncrosslinked material per claim 26. Kwong et al. '179 further teaches other layers may be crosslinked per claim 49 (see col. 11, lines 14-25). It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the functional layers of a

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device, including crosslinked layers, taught by Kwong et al. '179 for the Kwong et al. '038 device, because the layers taught by Kwong et al. '179 are functional organic layers of an OLED device and Kwong et al. '179 teaches the benefit of crosslinking some of the layers.

7. The rejection of claims 1-4, 6, 7, and 9-25 under 35 U.S.C. 103(a) as being unpatentable over Kwong et al. (US 2004/0214038 A1) in view of Kwong et al. (US 6,982,179) is withdrawn due to the amendment of claim 1.

8. Claims 26-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (US 2004/0021413 A1) in view of Kwong et al. (US 6,982,179). Ito et al. discloses an electroluminescent display comprising an anode comprising ITO per the deposition surface (see par. 189), partition walls comprising a photoresist material (see par. 189), and a PEDOT:PSS hole injection layer (see par. 170). With regard to claims 31-33, the hole transporting layer made from PEDOT:PSS is deemed to have the property of wave-guiding, because PEDOT:PSS is the same material as taught by applicant for the hole transporting layer. Ito et al. further discloses a luminescent layer (see par. 174) and a cathode (see par. 182). Ito et al. clearly discloses multiple organic functional layer disposed between resist material, but does not teach that one of the organic layers is cross-linked. Kwong et al. (US 6,982,179) teaches in analogous art depositing a first organic layer that is insoluble to the second layer (see abstract). One way of achieving insolubility for the first layer is to cross-link the hole transport layer (see col. 10, lines 28-53, Fig. 3 description). Kwong et al. further teaches cross-linking increases the mechanical strength and thermal stability of the thin film layer (see col. 11, lines 38-40). Kwong et al. further teaches blocking layers (see col. 6, lines 53-67). The cross-linking step taught by Kwong et al. is considered to render the material different from an uncrosslinked material per claim 26.

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Kwong et al. further teaches other layers may be crosslinked per claim 49 (see col. 11, lines 14-25). It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the functional layers of a device, including crosslinked layers, taught by Kwong et al. for the Ito et al. device, because the layers taught by Kwong are functional organic layers of an OLED device and Kwong et al. teaches the benefit of crosslinking some of the layers.

9. The rejection of claims 1-4, 6, 7, and 9-25 under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (US 2004/0021413 A1) in view of Kwong et al. (US 6,982,179) is withdrawn due to the amendment of claim 1.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-4, 6, 7, 9-13, 15-22, 24-44, 46-48 and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Towns et al. (US 2002/0011779 A1). Towns discloses electroluminescent devices comprising a first charge carrier injecting layer for injecting positive charge carriers and a second charge-carrier injecting layer for injecting negative charge carriers (the electrodes), an organic light-emitting layer located between the first and second charge-carrier injecting layers

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and an unpatterned conductive polymer layer located between the organic light-emitting layer and the patterned charge-carrier injecting layer (see abstract). Towns discloses the conductive polymer layer contains a cross-linking agent such as epoxy-silane (see par. 13). Silane is one of the crosslinking agents recited in claim 1. The organic light-emitting layer and the conductive polymer layer read upon the “plurality of organic layers” of claim 1. The polymers disclosed for the conductive polymer layer are known hole transporters per claim 3 (see par. 11-13). Although Towns does not specifically use the term hole transporting, the position of the conductive polymer layer between the light-emitting layer and the charge-carrier injecting layer (anode) would be considered to transport holes in light of the conventional structure and functioning of electroluminescent devices. With regard to claim 12, one of the charge carrier layers (electrodes) is considered to be a cathode (see par. 8). With regard to claim 13, Towns discloses the required hole transporting material PEDOT:PSS (see par. 11-13). The cross-linking step taught by Towns et al. is considered to render the material different from an uncrosslinked material per claim 26. The limitation “formed by a pocket in a layer of resist” in claim 50 is considered to be a product-by-process step and only the features of the final product are considered patentably significant. See MPEP 2113.

12. Claim 50 is rejected under 35 U.S.C. 102(e) as being anticipated by Kwong et al. (US 6,982,179). Kwong discloses organic EL devices comprising a step of depositing a first organic layer that is insoluble to a second layer (see abstract). One way of achieving insolubility for the first layer is to cross-link the hole transport layer (see col. 10, lines 28-53, Fig. 3 description). Kwong et al. '179 further teaches cross-linking increases the mechanical strength and thermal stability of the thin film layer (see col. 11; lines 38-40). Kwong et al. '179 further teaches

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blocking layers (see col. 6, lines 53-67). Kwong et al. '179 further teaches other layers may be crosslinked with regard to each layer being crosslinked (see col. 11, lines 14-25). The limitation "formed by a pocket in a layer of resist" is considered to be a product-by-process step and only the features of the final product are considered patentably significant. See MPEP 2113.

13. Claims 1, 6, 7, 14, 16, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Sirringhauss et al. et al. (US 2004/0266207 A1). Sirringhauss et al. discloses devices comprising organic layers modified by solution processing (see abstract). Sirringhauss et al. discloses a polymer layer that is formed by mixing polymer with a crosslinking agent such as hexamethoxymethylamine (see par. 38). An amine is one of the cross-linking materials recited in claim 1. With regard to claims 6 and 7, the crosslinking amine is considered to read upon the solution required by the claims. With regard to claim 14, a thin film transistor (TFT) may be formed (see par. 45). With regard to claim 25, electrodes are disclosed (see par. 49).

14. Claim 50 is rejected under 35 U.S.C. 102(e) as being anticipated by Ottermann et al. (US 2004/0101618 A1). Ottermann et al. discloses light emitting devices (see abstract) comprising at least one organic layer that is crosslinked to produce particularly stable layers (see par. 50). The limitation "formed by a pocket in a layer of resist" is considered to be a product-by-process step and only the features of the final product are considered patentably significant. See MPEP 2113.

Allowable Subject Matter

15. Claim 23 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The closest prior art fails to teach a device comprising all of the layers

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required by claim 23 wherein either the emissive layer or the electron transport layer is crosslinked and there is a specific crosslinking agent present as required by parent claim 1.

Response to Arguments

16. Applicant's arguments filed August 24, 2006 have been fully considered but they are not persuasive.

Applicant argues with respect to the previous rejections over claim 26 that Kwong fails to teach functionality is added through the process of crosslinking. The examiner maintains that the material is changed through crosslinking. The prior material and the crosslinked material do not have the exact same properties, because they are different and unique from one another.

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached at (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Dawn Garrett
Primary Examiner
Art Unit 1774

November 13, 2006